

1 What is claimed is:

2 1. An ionization detector, comprising:

3 an ionization chamber configured to allow a sample fluid to flow through;

4 a first electrode;

5 a second electrode, the first and second electrodes capable of forming an electrical
6 field in the ionization chamber; and

7 an optical window configured to allow a radiation beam to enter the ionization
8 chamber, wherein a direction of propagation of the radiation beam in the ionization chamber is
9 co-linear to a direction of flow of the sample fluid in the ionization chamber.

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11 2. The ionization detector according to claim 1, further comprising a laser, wherein the
12 radiation beam is a laser beam produced by the laser.

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14 3. The ionization detector according to claim 2, wherein at least a portion of the first
15 electrode forms a first area of an interior surface of the ionization chamber, and at least a portion
16 of the second electrode forms a second area of the interior surface of the ionization chamber.

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18 4. The ionization detector according to claim 3, wherein the sample fluid comprises
19 gases.

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21 5. A method for ionizing a sample fluid in an ionization chamber, comprising:
22 generating an electrical field in the ionization chamber;
23 directing a radiation beam into the ionization chamber such that a direction of
24 propagation of the radiation beam in the ionization chamber is co-linear to a direction of flow of
25 the sample fluid in the ionization chamber.